

MX2 Using Safety Quick Start Guide

This guide discusses how to connect the MX2 drive to NX safety.

Description

- 1. Items needed:
 - a. MX2-V1 Inverter Users Manual EN_201305_1585_E1_01, found at <u>www.omron247.com</u>.
 - b. Safety Control Units User's Manual Z930, found in help section of Sysmac Studio.

Caution

Be careful when using the spring clips on the terminal blocks. MX2 is useless if you break the wrong one since the terminal block is permanent.



Precautions

- 1. Cable length should be 30m or shorter.
- 2. Reset
 - a. Turn off the run command before resetting equipment.
 - b. Release any safety devices.
 - c. Verify GS1 and GS2 input signal are on.
 - d. Turn on the run command.
- 3. It takes 10 ms or shorter for the inverter to shut off the output.

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Wiring



Hardware Settings

- 1.) Turn off power.
- 2.) On MX2, open cover. (You will need a screwdriver.)
- 3.) Set safety and EDM function selector switches to "on".



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4.) GS1 and GS2 on the MX2 side must be wired into S3 and S4.



Parameters

Parameter No.	Function name		Data	Default data	Unit
C003	Multi-function Input S3/S4	77:	GS1 (GS1 input) ^{*1}	18	
C004	Selection	78:	GS2 (GS2 input) ^{*1}	12	_
C013	Multi-function Input S3/S4	01:	NC (NC contact) ^{*1}	00	_
C014	Operation Selection			00	
C021	Multi-function Output P1 (Selection	62:	EDM (Safety device monitor) ^{*2}	00	-
C031	Multi-function Output P1 Operation Selection	00:	NO (NO contact) ^{*2}	00	-
b145	GS Input Operation Selec- tion	00: 01:	No trip (shut off by hardware) Trip ^{*3*4}	00	_

Parameters / Nodes

Multiview explorer -> Select Safety CPU -> Configuration and setup -> Communications -> Safety -> Safety I/O -> Select a node -> double click on parameters -> click on the white X next to the filter to see all of the nodes -> use toolbox to select a safety device (might need to drag right side window to see the toolbox) -> drag and drop parameter to knob -> complete for all nodes. Note: The fields in the nodes are not used in the program. Could be used to enter part name/type/number.

(Input) Mechanical contact for single channel

Mechanical Contact For Single Channel					
Source T0 🔻	On->Off Oms	Off->On ▼ 0ms ▼	ĺ		
Discrepancy:	0ms	v			
Test Pulse: Test Output (mechanical contact)					

(Output) Dual output with test pulse



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I/O Map

Multiview Explorer -> select Safety CPU -> Configurations and Setup -> double click on I/O Map -> make sure arrown buttons are all pointing down -> use variable template to paste (Note: It will not paste if there is an empty field. Can only do groups when no empty fields.) OR manually enter with right click OR scroll down to highlight all variables -> right click -> select variable. (Note: Do not enter a variable name for the second input or output of dual channel devices.)

🔧 Configurations and Setup I/O Map 🗙 Pos R/W Data Type Variable Port Etł Master Nc NX-SID800 V Safety Inputs Si00 Logical Value SAFEBOOL G5In Si01 Logical Value SAFEBOOL SAFEBOOL Light_curtain_1 Si02 Logical Value R Si03 Logical Value SAFEBOOL Si04 Logical Value SAFEBOOL Light_curtain_2 Si05 Logical Value SAFEBOOL Si06 Logical Value SAFEBOOL Estop Si07 Logical Value SAFEBOOL Status Safety Connection Status SAFEBOOL N2_Safety_Connection_Status N2_Safety_Input_Terminal_Status Safety Input Terminal Status R SAFEBOOL NX-SOD400 N V Status Safety Connection Status SAFEBOOL N3_Safety_Connection_Status R N3_Safety_Output_Terminal_Status Safety Output Terminal Status R SAFEBOOL Safety Outputs So00 Output Value w SAFEBOOL G5OUT So01 Output Value W SAFEBOOL So02 Output Value w SAFEBOOL

Note: Same as G5 servo drive for safety.

Program

Use the EDM safety function block.

Multiview Explorer -> select new_safetyCPU -> Programming -> POU -> Programs -> Program0



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